REMARKS

This is responsive to the last office action and the Examiner interview of February 23, 2005. In the interview, Examiner Mai recognized "the optimization in view of the graphs [submitted on 05/18/04], . . . [and] the optimization of the 'inrush flow rate' shown in the new graphs" submitted on May 18, 2004. (Interview Summary, Feb. 23, 2005). But Examiner Mai "noted that the claimed aspect ration (1.5 – 1.7) is beyond the tested range (C – 1.61; D – 1.51) [and requested] Applicant to provide new data of aspect ratio to clarify the optimization." (*Id.*) Without commenting on the correctness of the Examiner's request, Applicant provides the attached Declaration of Mr. Brian Fields and the graph dated September 19, 2005, of normalized flow rate for an end (identified as end E) having an aspect ratio of 1.7, which Applicant believes satisfies the Examiner's request.

BACKGROUND

The data presented is normalized flow rate versus time; the flow rate data is normalized by the opening area and its plots have the same shape of as flow rate per unit area versus time. Applicant's response of May 18, 2004, explains that the normalized flow rate data was obtained from the flow rate data by using information already of record[1]:

> "the y-axis magnitudes of each plot of . . . are multiplied by the ratio of the opening area of the base end (that is, 0.450 sq. in.) to the opening area of the particular plot's end to produce the scale on the left side of the graph. For example, each of the y-axis magnitudes (using the scale on the left side of the graph) for the end of Plot D having an opening area of 0.487 sq. in. is multiplied 0.924 (that is, 0.450/0.487). . . . The result is a plot of normalized flow rate on the y-axis versus unit time on the x-axis. Ignoring dimensions, the shape of the plots generally represents flow rate per unit area versus unit time.

Response, May 18, 2004 (citations omitted)

As explained in earlier responses and in the attached Declaration of Mr. Brian Fields, a large-magnitude peak of normalized flow rate (or flow rate per unit area) generally corresponds to a beneficial inrush characteristic (Fields Declaration, para. 6). And the high

1 Applicant's as-filed application included data of flow rate versus unit time for three ends (identified as ends A, B, and C). Applicant submitted flow rate data for a fourth end (identified as end D) in the response of December 9, 2002. Applicant presented data of flow rate that was *normalized by the opening area* versus time by manipulating the existing data (that is, data for ends A – D) in the response of May 18, 2004.

initial peak values of the inventive, claimed ends C, D, and E (compared to conventional ends A and B) demonstrate that Applicant's solution achieves the result of enhancing flow characteristics through a relatively small opening. (Fields Declaration, para. 7). Applicant believes that the Examiner concurs because of the reference to optimization in the record of the Examiner's Interview.

DATA IN ACCORDANCE WITH THE EXAMINER'S SUGGESTION

In accordance with the suggestion from the Examiner's Interview record, Applicant submits new normalized flow rate data for an end E — which has an opening area of 0.450 square inches and *an aspect ratio of 1.7* — on top of the existing plots for ends A – D. The plot for end E was prepared by the inventor Mr. Brian Fields using the same procedures that he used to prepare the plots for ends A – D. (Fields Declaration, para. 4) A summary of relevant attributes of the tested ends in the attached graph is provided below:

Label	Color	Area (sq. in.)	Aspect Ratio
A – 202 LOE Normalized	pink (thick)	0.596*	1.47
B – Std 202 .450	black	0.487	1.1*
C – 202 SE LOE .450 1.6	red	0.450	1.61
D – 202 SE LOE .487 Normalized	blue	0.487	1.51
E – 202 SE LOE .450 1.7	pink (thin)	0.450	1.7

* indicates a parameter that is outside the range of the present claims.

The graph shows that the magnitude of the first peak of normalized flow rate (or flow rate per unit area) of the opening of end E is significantly higher than the first peaks for the conventional ends A and B. In fact, the magnitude of the first peak and the general shape of the plot of normalized flow rate for end E are clearly like those of other inventive ends C and D, and are clearly different from those of conventional ends A and B.

Accordingly, the attached plots of normalized flow rate of ends C, D, and E — having aspect ratios of 1.51, 1.61, and 1.7 — demonstrate the optimization over the claimed range of 1.5 – 1.7, as requested in the Interview Summary. And Applicant submits, in accordance with the Examiner Interview, that the enclosed data does not add new matter.

CONCLUSION

Applicant submits data to show optimization of the entire claimed range as requested in the Examiner's Interview. Accordingly, Applicant submits that the response is responsive to the outstanding action and requests reconsideration of the pending rejection.

If the Examiner determines that a telephone conversation would further the prosecution of this case, he is invited to telephone the undersigned at his convenience.

Date: September 19, 2005

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CC-3184;WO110US PATENT

N THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Fields, Brian

Serial No.:	09/857,145	Group Art Unit:	3727
Filed:	May 31, 2001	Examiner:	Mai, Tri M.

For: SMALL DIAMETER CAN END WITH LARGE OPENING

Assistant Commissioner for Patents
Washington, D.C. 20231

DECLARATION OF MR. BRIAN FIELDS

I, Mr. Brian Fields, make the following declaration:

1. I, Brian Fields, am the inventor of the subject matter disclosed and claimed in United States Patent Application No. 09/857,145 ("Patent Application"). I understand that the pending claims of the Patent Application have been rejected by the patent office based on a combination of references.

2. I am employed by Crown Technologies Corporation, where my present capacity is End Development Manager. I have a bachelors degree in Mechanical Engineering from Loughborough University, U.K., and have been involved in engineering and development in the field of metal containers for 24 years.

3. I performed the testing reflected in the graph included in the as-filed application (for ends A –C) and the graph included in the prior response submitted to the patent office on December 9, 2002 (for end D).

4. I prepared the enclosed graph by forming a can end having an opening area of 0.450 square inches and an aspect ratio of 1.7 and measuring the flow rate according to the same test procedures that I used to produce the plots for ends A – D. I then added the data for end E to the normalized graph of ends A - D.

5. The shape of the plots of normalized flow rate on the y-axis versus unit time on the x-axis, ignoring dimensions, generally represents flow rate per unit area versus unit time.

6. Flow characteristics upon initially rotating a container (as described on page 2, line 22, et seq., of the as-filed application) are important parameters in evaluating end performance. I believe the first peak of a graph of flow rate versus unit time is an important parameter that reflects inrush characteristics. The normalized first peak, as described above, represents the inrush characteristic per unit area, and is an important parameter in evaluating end performance.

7. The normalized graph shows the magnitudes of the first peaks in flow rate per unit area of the inventive openings C, D, and E are significantly greater than those of conventional ends A & B. The greater magnitudes of the first peak of flow rate per unit area of the inventive ends represent unexpected results.

8. All statements of my own knowledge are true and correct, or are based on information that I believe to be true and correct. I acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both, and may jeopardize the validity of the application or any patent issuing thereon.

Executed on Sept 19th 2005

Brian Fields

September 19, 2005